
Chapter 4: Detecting and resolving performance problems

CPU capacity

Frequently, switch performance problems can be traced back to an overloaded CPU or to a data link speed that is insufficient to handle the Meridian Link or CCR connection. Use the available standard traffic reports to

- help determine whether the switch CPU is operating within its rated capacity. (If the switch is being operated above its rated capacity, it should either be upgraded with a faster CPU or some of the traffic or features should be off-loaded to another switch.)
- help determine whether the AML or Meridian Link data rate is adequate for the number of messages sent over the AML to the module. (There are also similar reports on the module.)

Use LD 2 or Overlay 2 to schedule traffic report 8. Report 8 can be printed periodically, typically every half hour or every hour. The report contains a count of the number of messages sent and received. Use the TFS traffic reports to get information on system counters and the TFC reports for customer-specific data. For detailed descriptions of each traffic report, refer to the *Meridian 1 Traffic Measurement Formats and Outputs* (NTP 553-2001-450).

Assuming an average message size of 30 bytes, you can estimate the occupancy of the link. For example, the traffic report indicates that the Meridian 1 sent 1000 messages and received 1500 messages during a particular busy half hour period. Because the link is 19,200 bps full duplex, use the larger number, which in this case is 1500 messages per half-hour.

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Dividing 1500 messages per half-hour by 30 minutes indicates that 50 messages were transmitted on average in each minute. Dividing 50 messages per minute by 60 seconds per minute indicates that 0.83 messages were transmitted on average per second. Multiplying 0.83 by 30 bytes per message and by 8 bits per byte indicates that 200 bits per second are being transferred. If the link is operating at 19,200 bits per second, its occupancy is very low (1.042%). When the occupancy is 70%, the link is operating at its rated capacity. Similar calculations can be done for the Meridian Link (link 1).

Using the monitor and trace commands can slow down the system significantly. These facilities should only be used for debug purposes. The record and traffic facilities will slow the system down too, but to a much lesser degree.

When to use traffic reports

The recommended times to use traffic reports are as follows:

- immediately after an application has been turned on for operation
- when performance problems are reported
- annually, to determine if adjustments are needed to the link speed

Resolving problems with an overloaded link

If the traffic reports reveal that the link is overloaded during the busy hour, resolve the problem using the following methods:

- Adjust the link speed, if possible.
- If unable to adjust the link speed, off-load the application to another switch.